

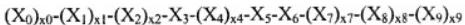
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-18 (canceled)

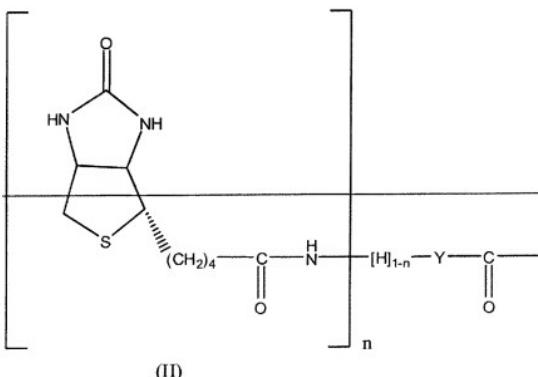
Claim 19 (currently amended): A molecule of general formula (I), and the pharmaceutically acceptable salts thereof:



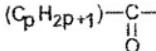
(I)

in which

- $x_0, x_1, x_2, x_4, x_7, x_8$ and x_9 each represent, independently, an integer equal to 0 or to 1;
- X_0 represents a group chosen from those corresponding to formula (II):

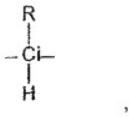


in which Y represents a saturated or unsaturated, linear, branched or cyclic C_4-C_{24} alkyl group, n represents an integer chosen from 0 and 1;

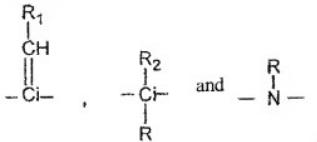


with p ranging from 3 to 23;

- X₁ and X₃ each represent a natural or synthetic amino acid in the L or D configuration, each comprising at least one hydroxyl function on its side chain;
- X₂ represents a natural or synthetic amino acid in the L or D configuration chosen from those comprising an alkyl side chain;
- X₄ represents a natural or synthetic amino acid in the L or D configuration which can be chosen from those comprising an aromatic side chain;
- X₅ represents an amino acid in the L or D configuration chosen from lysine, arginine, histidine, aspartic acid, asparagine, glutamic acid and glutamine;
- X₆ represents an amino acid in the L or D configuration which can be chosen from tyrosine, phenylalanine, leucine, isoleucine, alanine, *para*-benzoylphenylalanine and lysine;
- X₇ represents an amino acid in the L or D configuration which can be chosen from glycine, alanine, leucine, valine, asparagine and arginine;
- X₈ represents an amino acid in the L or D configuration which can be chosen from proline, valine, isoleucine and aspartic acid;
- X₉ represents an amino acid in the L or D configuration which can be chosen from serine, alanine, lysine, arginine and tryptophan;
- the bond between two successive amino acids X_i-X_{i-1}, denoted q_{i to i+1}, i = 1 to 8 can be a peptide bond $\overset{\text{O}}{\underset{\underset{|}{\text{C}}}{\text{-}}} \text{NH} -$ or a pseudopeptide bond chosen from: CO-O, CO-S, CO-CH₂, CO-N(Me), NH-CO, CH=CH, CH₂-CH₂, CH₂-S, CH₂-O, CS-NH, CH₂-NH, CO-CH₂-NH, CO-NH-NH, CO-NH-N= and CO-N(NH₂);
- the amino acids stated above X_i, i = 1 to 9 being capable of comprising a modification of their α -carbon, denoted C_i, i = 1 to 9 and bearing the side chain R of the amino acid, which modification consisting of the replacement of:



with a group chosen from:



the groups R and CH-R₁ representing the side chain of the amino acid and R₂ representing a C₁-C₆ alkyl group; R-R₂ can constitute a ring,

-the pseudopeptides of the invention also corresponding to the following conditions:

x0 is equal to 1

or

one of the bonds q_{i to i-1}, i = 1 to 8 is a pseudopeptide bond

or

one of the C_i, i = 1 to 9 comprises one of the modifications stated above, wherein said molecule of formula (I) is capable of modulating the proteasome.

Claim 20 (previously presented): The molecule as claimed in claim 19, wherein one or more of the following conditions is verified:

at least one of the integers x0, x1, x2, x4, x7, x8 and x9 is equal to 1;

X₁ and X₃, which may be identical or different, are chosen from threonine and serine;

X₂ is chosen from valine, leucine and isoleucine; or

X₄ is chosen from phenylalanine, tryptophan, tyrosine and *para*-benzoylphenylalanine.

Claim 21 (previously presented): The molecule as claimed in claim 20, comprising 4 to 8 amino acids.

Claim 22 (currently amended): A molecule as claimed in claims 19 to 21, wherein x0 = 1

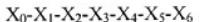
and the acyl chain $\text{Y}-\text{CO}$ is a linear chain which is represented by the formula $\text{C}_p\text{H}_{2p}-\text{CO}-\text{p}$, p being an integer ranging from 1 to 23.

Claim 23 (canceled)

Claim 24 (previously presented): The molecule as claimed in claim 19, wherein one or more of the following conditions are verified:

- at least one of X_1 and of X_3 represents threonine,
- X_2 is chosen from isoleucine and valine,
- X_4 is chosen from phenylalanine, tyrosine and *para*-benzoylphenylalanine, or
- at least 2 of the integers $x_0, x_1, x_2, x_4, x_7, x_8$ and x_9 are equal to 1.

Claim 25 (previously presented): The molecule as claimed in claim 19, wherein the molecule corresponds to formula (la):



(la)

in which the bonds $q_{i \rightarrow i+1}$ between the amino acids X_i and X_{i+1} , $i = 1$ to 5 are peptide or pseudopeptide bonds.

Claim 26 (canceled)

Claim 27 (canceled)

Claim 28 (previously presented): The molecule as claimed in claim 19, wherein the molecule corresponds to formula (lb):



(lb)

in which:

-at least one of the bonds between two successive amino acids is a pseudopeptide bond,

or

-one of the α -carbons of one of the amino acids is a modified α -carbon.

Claim 29 (currently amended): The molecule as claimed in claim 19, wherein the molecule is:

$\text{CH}_3\text{-}(\text{C}_n\text{H}_{2n})\text{-CO-TVTDY}$ with $n=4, 6, 8, 10, 12, 14, 16, 18$;

$\text{CH}_3\text{-}(\text{C}_n\text{H}_{2n})\text{-CO-TISYDY}$ with $n=4, 6, 8, 10, 12, 14, 16, 18$;

$\text{CH}_3\text{-}(\text{C}_n\text{H}_{2n})\text{-CO-TVSYKF}$ with $n=4, 6, 8, 10, 12, 14, 16, 18$;

$\text{CH}_3\text{-}(\text{C}_n\text{H}_{2n})\text{-CO-TITFDY}$ with $n=4, 6, 8, 10, 12, 14, 16, 18$;

$\text{CH}_3\text{-}(\text{C}_n\text{H}_{2n})\text{-CO-TITYKF}$ with $n=4, 6, 8, 10, 12, 14, 16, 18$;

$\text{CH}_3\text{-}(\text{C}_n\text{H}_{2n})\text{-CO-TITYEY}$ with $n=4, 6, 8, 10, 12, 14, 16, 18$;

$\text{CH}_3\text{-}(\text{C}_n\text{H}_{2n})\text{-CO-TITYDF}$ with $n=4, 6, 8, 10, 12, 14, 16, 18$;

$\text{CH}_3\text{-}(\text{C}_n\text{H}_{2n})\text{-CO-TVTKL}$ with $n=4, 6, 8, 10, 12, 14, 16, 18$;

$\text{CH}_3\text{-}(\text{C}_n\text{H}_{2n})\text{-CO-TVTKY}$ with $n=4, 6, 8, 10, 12, 14, 16, 18$;

$\text{CH}_3\text{-}(\text{C}_n\text{H}_{2n})\text{-CO-TVFKF}$ with $n=4, 6, 8, 10, 12, 14, 16, 18$;

$\text{CH}_3\text{-}(\text{C}_n\text{H}_{2n})\text{-CO-TITYDL}$ with $n=4, 6, 8, 10, 12, 14, 16, 18$;

$\text{CH}_3\text{-}(\text{C}_n\text{H}_{2n})\text{-CO-TVTFDY}$ with $n=4, 6, 8, 10, 12, 14, 16, 18$;

$\text{CH}_3\text{-}(\text{C}_n\text{H}_{2n})\text{-CO-TVTFKF}$ with $n=4, 6, 8, 10, 12, 14, 16, 18$;

$\text{CH}_3\text{-}(\text{C}_n\text{H}_{2n})\text{-CO-TVTKF}$ with $n=4, 6, 8, 10, 12, 14, 16, 18$;

Biot-Ava-TVT-Bpa-KF;

Biot-Ava-TVT-Bpa-KY;

Biot-Ava-TVT-Bpa-KL;

Biot-Ava-TVT-Bpa-DF;

Biot-Ava-TVT-Bpa-DY;

Biot-Ava-TVT-Bpa-DL;

Biot-Ava-TIT-Bpa-KF;

Biot-Ava-TIT-Bpa-KY;

Biot-Ava-TIT-Bpa-KL;

Biot-Ava-TIT-Bpa-DF;
Biot-Ava-TIT-Bpa-DY;
Biot-Ava-TIT-Bpa-DL;
Biot-Ava-TVT-Bpa-EF;
Biot-Ava-TVT-Bpa-EY;
Biot-Ava-TVT-Bpa-EL;
Biot-Ava-TIT-Bpa-EL;
Biot-Ava-TIT-Bpa-EY;
Biot-Ava-TIT-Bpa-EL;
Biot-Ava-TVT-Bpa-NF;
Biot-Ava-TVT-Bpa-NY;
Biot-Ava-TVT-Bpa-NL;
Biot-Ava-TIT-Bpa-NF;
Biot-Ava-TIT-Bpa-NY;
Biot-Ava-TIT-Bpa-NL;
TNL*GPS;
SEK*RVW;
TRA*LVR;
SNL*NDA; or
THI*VIK;

wherein Biot represents a biotinyl group;

Ava represents a δ -aminovaleric acid group,

Bpa represents a *para*-benzoylphenylalanine group; and

wherein * represents:

-a bond chosen from ester, thioester, keto methylene, keto methylenearmido, N-methylamide, inverse amide, Z/E vinylene, ethylene, methylenethio, methyleneoxy, thioamide, methylenearmido, hydrazino, carbonylhydrazone and N-amino bonds, or
-the presence of an aza-amino acid as a substitution for one of the amino acids adjacent to *.

Claim 30 (previously presented): The molecule as claimed in claim 19 coupled on its C-terminal end and/or on its N-terminal end with another molecule which promotes its bioavailability.

Claim 31 (previously presented): A composition comprising the molecule as claimed in claim 19 in a pharmaceutically acceptable carrier.

Claim 32 (previously presented): A method for prevention and treatment of a disorder or a pathology associated with proteasome activity comprising administering to an animal in need thereof a molecule as claimed in claim 19.

Claim 33 (previously presented): The method of claim 32, wherein the disorder or pathology is selected from: cancers involving hematological tumors or solid tumors; autoimmune diseases; AIDS; inflammatory diseases; cardiac pathologies; pathologies associated with the consequences of ischemic processes at the myocardial, cerebral or pulmonary level; allograft rejection; amyotrophy; cerebral strokes; traumas; burns; and pathologies associated with aging.

Claim 34 (previously presented): A method for radiosensitizing a tumor comprising contacting the tumor with a compound as claimed in claim 19.

Claim 35 (currently amended): A cosmetic and/or dermatological composition comprising a molecule as claimed in claim 19 claim 4, in a cosmetically and/or dermatologically acceptable carrier.

Claim 36 (currently amended): A cosmetic process for preventing or treating the appearance of effects of chronological skin aging and/or of photoaging, comprising applying to skin the molecule as claimed in claim 19 in a cosmetically acceptable carrier.

Claim 37 (previously presented): The molecule as claimed in claim 21, wherein the molecule comprises 5 to 7 amino acids.

Claim 38 (previously presented): The molecule as claimed in claim 21, wherein the molecule comprises 6 amino acids.

Claim 39 (previously presented): The molecule as claimed in claim 24, wherein at least 3 of the integers $x_0, x_1, x_2, x_4, x_7, x_8$ and x_9 are equal to 1.

Claim 40 (previously presented): The molecule as claimed in claim 26, wherein p ranges from 2 to 6.

Claim 41 (previously presented): The molecule as claimed in claim 27, wherein p ranges from 5 to 19.

Claim 42 (previously presented): The method as claimed in claim 32, wherein the animal is a human.

Claim 43 (currently amended): The method of claim 33 32, wherein the pathologies associated with aging are chosen from Alzheimer's disease and Parkinson's disease.

Claim 44 (previously presented): A method for modulating the proteasome of a cell comprising administering the molecule of claim 19 to a cell.

Claim 45 (previously presented): The molecule as claim in claim 19, wherein X_1 and X_3 both represent threonine.